

ABSTRACT OF THE DISCLOSURE

Disclosed herein is a method for manufacturing a zinc oxide semiconductor. The method comprises the steps of forming a zinc oxide thin film including a group V element as a dopant on a substrate by using a zinc oxide compound containing a group V element or an oxide thereof, charging the substrate having the zinc oxide thin film formed thereon into a chamber for thermal annealing, and thermal annealing the substrate in the chamber to activate the dopant, thereby changing the zinc oxide thin film exhibiting n-type electrical properties or insulator properties to a zinc oxide thin film exhibiting p-type electrical properties. According to the method, since a zinc oxide thin film exhibiting n-type electrical properties can be easily changed to a zinc oxide thin film exhibiting p-type electrical properties, the provision of holes required for optical devices is facilitated, thereby enabling the development of photoelectric devices such as light-emitting diodes, laser diodes and UV sensors and further extending applicability of the zinc oxide semiconductor.